MATABITA MOCKS 2024

MATHEMATICS SCORING GRID

ITEM ONE

(a)

2	40	30	I = 1
5	20	15	
2	4	3	
2	2	3	
3	1	3	
	1	1	

H.C.F = 2×5 = 10 — m = 1

The teacher can form 10 groups from 40 girls and 30 boys. — A = 1

Girls = $\frac{40}{10} = 4$ Boys = $\frac{30}{10} = 3$ — I = 1, m = 1

Each group will have 4 girls and 3 boys. — A = 1

(b)

$\frac{25}{40} \times 100 = 62 \simeq 63\%$ — I = 1, m = 1

He should tell parent that the learner got 63%. — A = 1

(c)

Amount paid by each = Ugx. 50,000

Amount planned for transport for each = $\frac{2}{5} \times 50{,}000 = Ugx.\ 20{,}000$ — I = 1, m = 1

Total transport for 30 students = 20,000 × 30 = Ugx. 600,000 — I = 1, m = 1

(d)

1200 three

$(1 \times 3^3) + (2 \times 3^2) + (0 \times 3^1) + (0 \times 3^0)$ — I = 1

$(1 \times 27) + (2 \times 9)$ — I = 1

45 ten — m = 2

∴ Mark won the QUIZ — A = 1

I = Identification

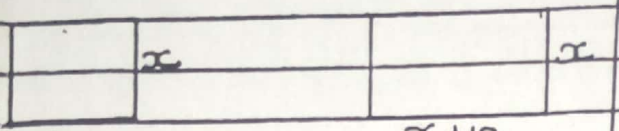
M = Manipulation

A = Application

ITEM TWO

(a)

Current | New



Let x = L and W of current square base — F=1

Current = $x \times x$

Area = x^2 — F=1

New Area = $3x^2$

Area = $x(x+10)$ — F=1

$= x^2 + 10x$ — m=1

$\therefore x^2 + 10x = 3x^2$

$3x^2 - x^2 - 10x = 0$

$2x^2 - 10x = 0$ — m=1

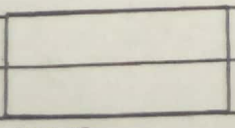
$2x(x-5) = 0$ — m=1

$2x = 0$ or $x - 5 = 0$

$x = 0$ $\quad x = 5$ — m=1

Taking the L and W of current square base to be 5m.

Sketch of the new base



m=1

A=1

L = x+10

= 5+10

= 15m

3-

f-

m - manipulation

A - Application

(b)

Let x = Number of kuroilers — F=1

y = Number of broilers

Sales = $30{,}000x + 25{,}000y$ — F=1

$x + y \leq 500$ — F=1

$x \leq 300$ — F=1

$x > y + 100$ — F=1

$x > 0$ — F=1

$y > 0$

Linear equations

$x + y = 500$

$x = 300$ — F=1

$x = y + 100$

$x = 0$

$y = 0$

Coordinates

$x + y = 500$

x	500	0
y	0	500

m=1

$x = y + 100$

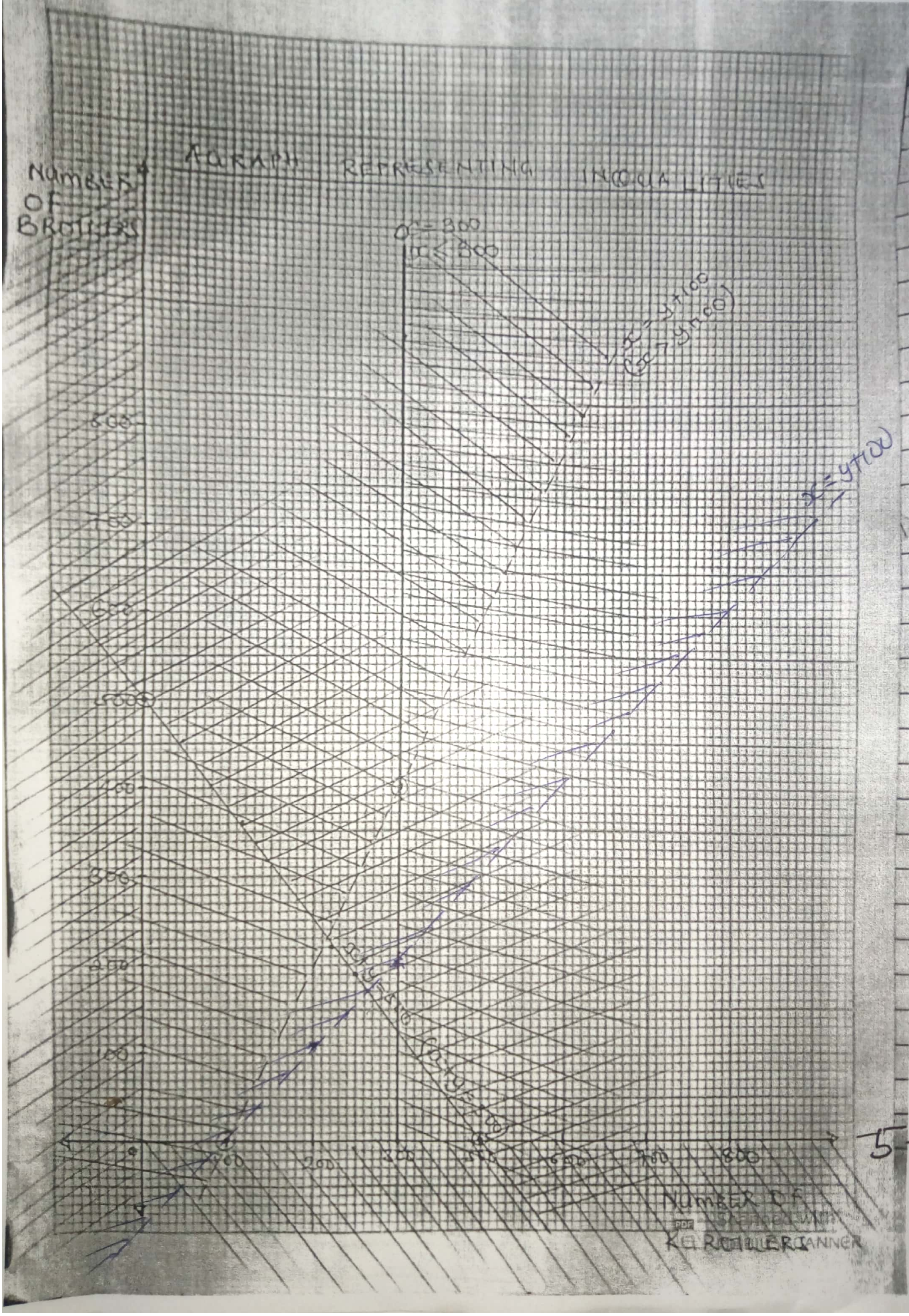
x	100	300	300
y	0	400	200

m=1

Optimal Points	sales	
250, 190	12, 250,000	m=1
220, 220	12,100,000	

∴ He can have 250 kuloirers and 190 broilers to maximise sales. — A=1

-4-


A GRAPH REPRESENTING INEQUALITIES
NUMBER OF BROILERS
x = 300
x ≤ 300
x = y+100
x = y+100
100
200
300
500
600
700
800

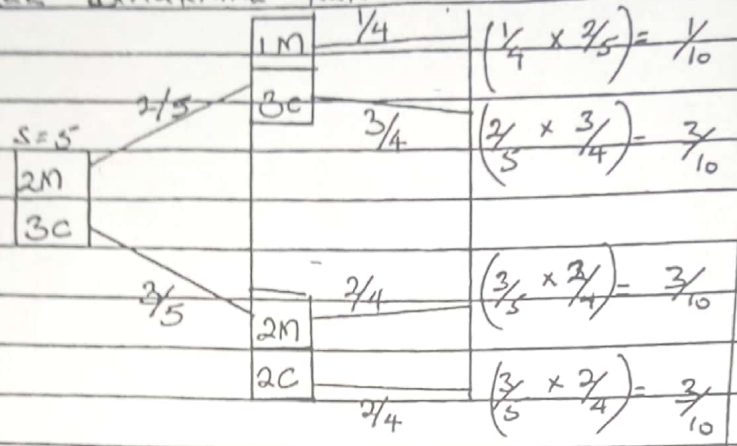
ITEM THREE

(a)

Let: M = mathematics

C = chemistry.

TREE DIAGRAME REPRESENTING THE DATA. P=1



P=1

P=1

P=1

Probability = $\frac{3}{10} + \frac{3}{10} + \frac{3}{10} = 0.9$ A=2

(b)

Let: M = mathematics, P = Physics, C = Chemistry

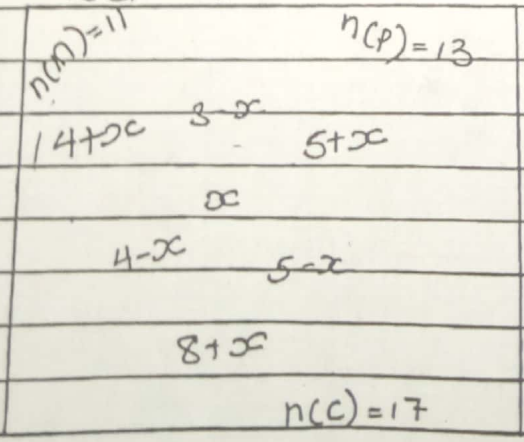
$n(\xi) = 30$, $n(M) = 11$, $n(P) = 13$, $n(C) = 17$,

$n(M \cap P) = 3$, $n(P \cap C) = 5$, $n(M \cap C) = 4$,

$n(M \cap P \cap C) = x$.

AVENN-DIAGRAME REPRESENTING THE DATA. P=1

$n(\xi) = 30$



A=1

6

$4+x+3-x+5+x+4+x+x+5-x+8+x = 30$ A=1

$4+3+5+4+5+8+x-x+1x-x+x-x+x = 30$

$29 + x = 30$

$x = 1$ A=1

$n(\xi) = 30$

$n(M) = 11$ $n(P) = 13$ P=1

5 | 2 | 6 P=1

1

3 4 P=1

9

$n(\xi) = 17$

Probability = $\frac{3+2+1+4}{30}$ A=1

$= \frac{10}{30}$ A=1

$= 0.3$ A=1

Conclusion :-

No he will choose only one since according to the teacher's recommendations the probability that he can do all is less than 0.5 Ap=1

7.

ITEM FOUR

a (i)

FREQUENCY TABLE REPRESENTING THE DATA.

scores%	Tallys	No. of stds	C.F	class boundaries
40-49	𝍸 ||	7	7	39.5 - 49.5
50-59	𝍸 |||	8	15	49.5 - 59.5
60-69	𝍸 ||||	9	24	59.5 - 69.5
70-79	𝍸 𝍸 |	11	35	69.5 - 79.5
80-89	𝍸 ||	7	42	79.5 - 89.5
90-99	𝍸 |||	8	50	89.5 - 79.5
		50		

50^{th} Percentile Position $= \frac{50}{100} \times 50 = 25$

$L_i = 69.5$

$C_{fb} = 24$

$F_{50} = 11$

$C_w = 10$

50^{th} percentile score $= 69.5 + \left(\frac{25 - 24}{11}\right) 10$

$= 70.4 \simeq 70\%$

She will set a pass mark of 70%

(ii)

Mode $= 69.5 + \left(\frac{2}{2+4}\right) 10$

$= 72.8\% = 73\%$

∴ The majority scored 73%

(iii)

I recommend a score of 73% to be set as passmark because it brings out fairness since it's scored by majority.

Learner can give any other conclusion.

ITEM FIVE

(a) Let the scale factor be x.

$4.5x = 9$ — A = 1

$x = \frac{9}{4.5}$ — m = 1

$x = 2\text{Cm}$ — m = 1

He can set the magnifier arm at scale factor 2 while standing at a position described by (2, 0) — $A_p = 2$

(b) Hire purchase he wants to use :-

cost = 3000 × 3500 — A = 1

= 10,500,000 uganda shillings. — m = 1

deposit = $\frac{60}{100} \times 10,500,000$ — A = 1

= Ugx. 6,300,000 — m = 1

Installment amount = 4 × 1,050,000 — A = 1

= 4,200,000 uganda shillings — m = 1

Total amount to be paid = Ugx. 10,500,000 — m = 1

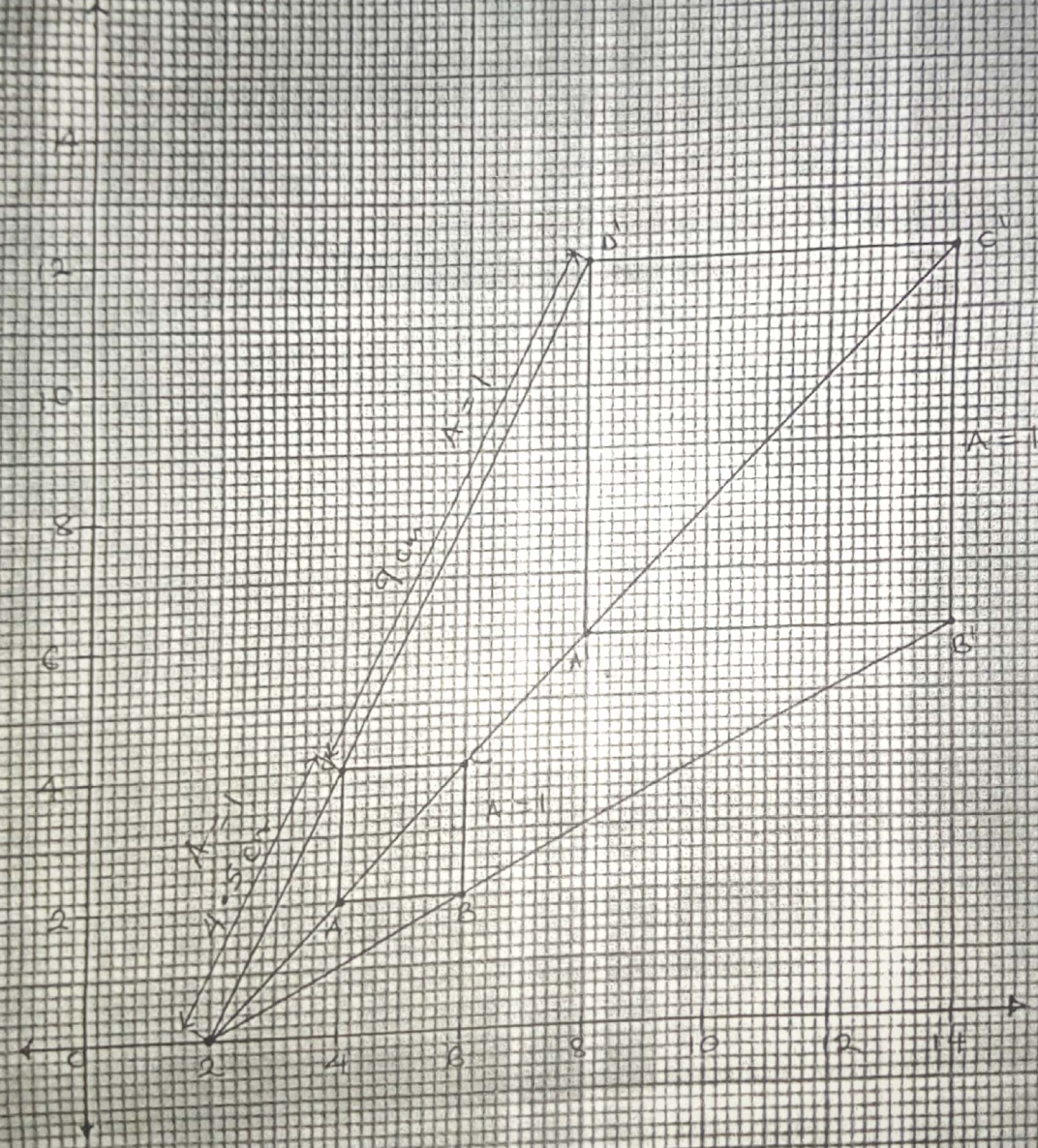
Amount to be paid on cash

$\frac{100 - 10}{100} \times 10,500,000$ — A = 1

Ugx. 9,450,000 — m = 1

Yes I advice him to pay according to doctor's advice because when he does so, he will save Ugx. 1,050,000 — $A_p = 2$

ITEM FIVE



ITEM SIX

(a)

Music box faces - 10cm by 10cm

box = 6 faces

surface area = $6s^2$ — A=1

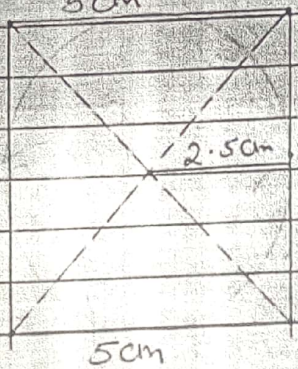
$= 6 \times 10^2$ — A=1

$= 600\ cm^2$ — m=1

∴ He will need a board of 600 square centimeters. — Ap=1

scale 1cm = 2cm

$\left(\frac{10}{2}\right)cm$ = 10cm — A=1



A=2

1cm = 2cm — A=1

2.5cm = 2.5×2

= 5cm — m=1

∴ Size of circular board to cut out $= \pi r^2$

$= 3.14 \times 5$ — A=1

$= 15.7cm^2$ — m=1

(b)

A $\begin{pmatrix} 4 \\ 6 \end{pmatrix}$ → B $\begin{pmatrix} 8 \\ 10 \end{pmatrix}$

$I = \begin{pmatrix} 8 \\ 10 \end{pmatrix} - \begin{pmatrix} 4 \\ 6 \end{pmatrix}$ A=1

$= \begin{pmatrix} 4 \\ 4 \end{pmatrix}$ m=1

∴ He can instruct him to move it 4cm right and 4cm up. Ap=2

(c)

Taxable income = 600,000 − 120,000 A=1

= UGx. 480,000 m=1

Income tax.

$\frac{0}{100} \times 200{,}000 = 0$

$\frac{10}{100} \times 100{,}000 = 10{,}000$

$\frac{15}{100} \times 100{,}000 = 15000$

$\frac{20}{100} \times 80{,}000 = 16000$

∴ Income tax = UGx. 41,000

Net pay = 600,000 − 41,000

= UGx. 559,000

∴ He will budget for 559,000.